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DOCKET NO. CP79-424



U.S. DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

CASE NO. U-45957

161-27

# ROCKY MOUNTAIN PIPELINE PROJECT

ENVIRONMENTAL  
IMPACT STATEMENT

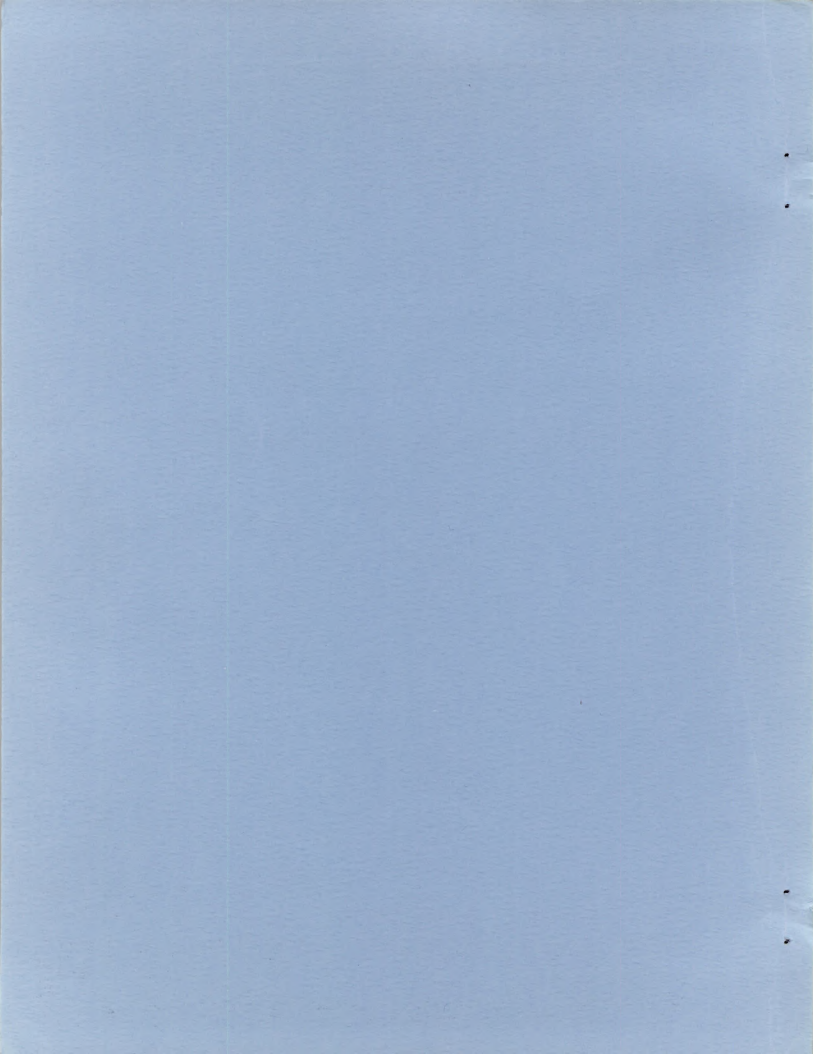
TECHNICAL REPORT FOR  
THREATENED AND  
ENDANGERED SPECIES



ROCKY MOUNTAIN PIPELINE COMPANY

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JULY 1981



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THREATENED AND ENDANGERED SPECIES

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TECHNICAL REPORT

Rocky Mountain Pipeline Project

Environmental Impact Statement

July 1981

Department of the Interior

Bureau of Land Management

Office of Special Projects

1911-1912 - 1913-1914

1914-1915

1915-1916 - 1916-1917

1917-1918 - 1918-1919

1919-1920

1920-1921 - 1921-1922

1922-1923 - 1923-1924

1924-1925 - 1925-1926



### Acknowledgements

This report was prepared in support of the Rocky Mountain Pipeline Project EIS.

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# TABLE OF CONTENTS

	<u>Page</u>
Description of the Study Area	iv
<b>METHODOLOGY</b>	1
<u>Definitions</u>	2
<b>AFFECTED ENVIRONMENT</b>	2
<u>Plants</u>	2
<u>Wildlife</u>	40
Federally Listed Species	40
Mammals	40
Birds	47
Reptiles	54
Fishes	59
Invertebrates	62
State Listed Species	<del>66</del> 65
<b>ENVIRONMENTAL CONSEQUENCES</b>	69
<u>Plants</u>	67
<u>Wildlife</u>	67
Federally Listed Species	67
Mammals	67
Birds	72
Reptiles	73
Fishes	74
Invertebrates	75
State Listed Species	75
<b>SOURCES AND REFERENCES CITED</b>	77

## TABLES

<u>Table</u>	<u>Page</u>
1      Population Estimates of Utah Prairie Dogs 1920-1972, and Population Censuses, 1975-1979.	43
2      Bald Eagle Habitat Along the Various Pipeline Routes.	48
3      Desert Tortoise Habitat Along the Various Pipeline Routes.	56
4      Federally Listed Endangered and Threatened Animal Species and Candidate Species that may occur within the Proposed Rocky Mountain Pipeline Area.	64
5      Threatened and Endangered Plant Species That Have a High Probability of being Located along the Proposed Action, Alternatives, or Variations.	68
6      Species That May Be Affected By the Various Routes of RMPP.	76

## MAPS

### Maps

### Page

- |   |  |   |
|---|--|---|
| 1 | Rocky Mountain Pipeline Project and Proposed Action,<br>Alternatives, and Variations | v |
| 2 | Threatened and Endangered Plant Species Location Map.                                | 5 |

## Description of the Study Area

*THE wildlife  
plant*

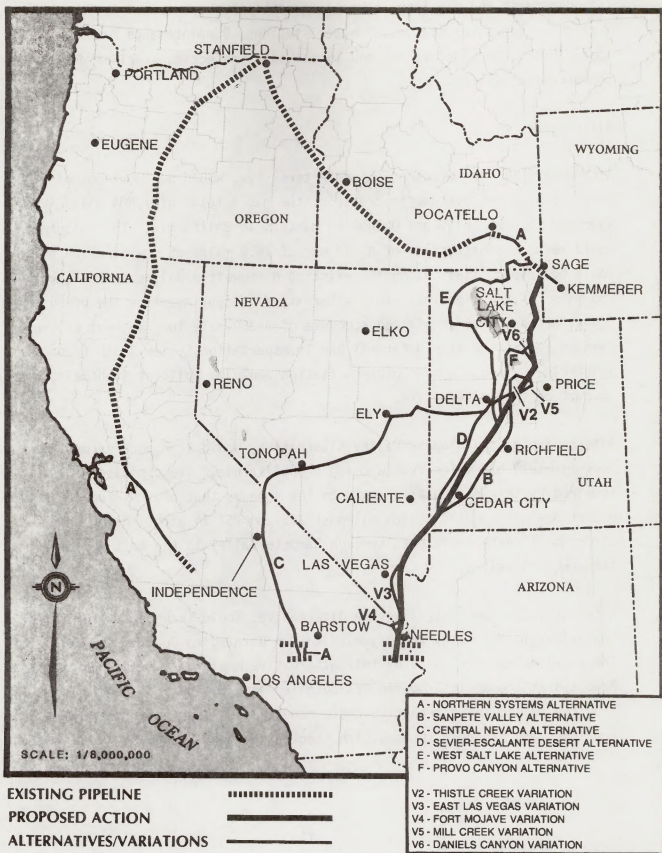
The Threatened and Endangered Species Technical Report describes the ~~cultural~~ resources that occur on or near the Rocky Mountain Pipeline Project (RMPP). This document provides a synthesis of current knowledge of the threatened and endangered species in the RMPP area. The information presented here supplements and supports the RMPP environmental impact statement (EIS) which is limited in accordance with the new Council on Environmental Quality (CEQ) guidelines.

A complete project description is presented in chapter 2 of the RMPP EIS. The following is a brief summary of the Proposed Action, six alternatives, and five variations to the project.

### Proposed Route

The RMPP is a 610-mile long natural gas pipeline transmission system proposed in a joint venture by Pacific Gas Transmission Company, (a subsidiary of Pacific Gas and Electric Company (PG&E), El Paso Natural Gas Company, Pacific Interstate Transmission Company, and Northwest Pipeline Company. They propose to construct a 583-mile long, 36-inch diameter interstate pipeline from Lincoln County, Wyoming, to the Nevada/California border in Clark County, Nevada. This pipeline would connect with a new 27-mile long, 36-inch diameter intrastate pipeline proposed by PG&E and Pacific Lighting Service Company. The project, as proposed, would provided potential customers in California and other southwestern states with natural gas supplies from the Overthrust Belt and Hingeline gas resource areas of the central Rocky Mountain region. (See map 1 for the location of the Proposed Action, alternatives, and variations).





In addition to the pipeline, other components of the Proposed Action would include a compressor station, 2 meter stations, 5 maintenance bases, approximately 34 block valves and 15 cathodic protection stations and a communication system.

#### Alternatives

Alternative A, the Northern Systems Alternative, would use portions of existing pipeline systems to transport the gas a total of 1,604 miles from Wyoming, through Idaho and Oregon to markets in California. This alternative would require construction of a minimum of 76.8 miles of new pipeline which would be looped (tied) along the existing Northwest pipeline in Idaho total of 255 miles of new pipeline. This alternative is contingent on the prebuilding (construction ahead of planned schedule of a 380-mile long segment of the Western Leg of the Alaska Natural Gas Transportation System south from Stanfield, Oregon. A new compress station would be built at Stanfield, Oregon as part of this alternative.

Alternative B, the Sanpete Valley Alternative, would transport natural gas approximately 630 miles from Wyoming of California. The pipeline route required by this alternative would be the same as that of the Proposed Action except between Proposed Action milepost 175 and 257 in Utah. Here, the alternative route would pass through Sanpete Valley to the east instead of through Juab Valley.

Alternative C, the Central Nevada Alternative, would transport natural gas approximately 862 miles from Wyoming to San Bernardino County, California. The pipeline route require by this alternative would be the same as the Proposed Action up to Proposed Action milepost 195, south of Nephi, Utah. From the point, the alternative route generally follows existing highway corridors and proceeds through Utah, central Nevada through Ely and Tonopah,

and south through the Owens Valley in California. This alternative would require the same types of facilities as the Proposed Action. Construction techniques would be the same, except that construction camps would be required.

Alternative D, the Sevier-Escalante Desert Alternative, would transport natural gas approximately 622 miles from Wyoming to California. The pipeline route required by this alternative would follow the same route as the Proposed Action up to Proposed Action milepost 195 south of Nephi, Utah. From the point, it would follow existing or proposed utility corridors along the Sevier River to the west of the Proposed Action. This alternative would rejoin the Proposed Action at milepost 366 north of Newcastle, Utah. The facilities would be similar to those for the Proposed Action.

Alternative E, the West Salt Lake Alternative, would transport natural gas approximately 747 miles from Wyoming to California. The pipeline route required by this alternative would follow the existing Northwest pipeline in Wyoming to Alternative A milepost 48 in Idaho. It would then depart from this right-of-way, crossing the salt flats west of the Great Salt Lake, and connect with the Proposed Action route at milepost 363 near Fillmore, Utah. Construction through the salt flats would require different construction techniques than those for the Proposed Action, such as construction of a raised road for vehicle use. It would require two compressor stations. The pipeline would have to be protected from the corrosive action of the salts. The other facilities required would be similar to those for the Proposed Action.

Alternative F, the Provo Canyon Alternative, would transport natural gas approximately 619 miles from Wyoming to California. The pipeline route required by this alternative would follow the same route as the Proposed Action except from milepost 180 to 214 in Utah. Here, it would pass through Provo Canyon to the west. The facilities required would be similar to those for the Proposed Action.

## Variations

The five variations studied are short pipeline segments that would replace portions of the Proposed Action. Variation 2, Thistle Creek would traverse Spanish Fork Canyon to the east of the Proposed Action. Variation 3, East Las Vegas would pass to the west of the Frenchman Mountains and the Proposed Action. Variation 4, Fort Mojave would pass west of the Fort Mojave Indian Reservation. Variation 5, Mill Creek would pass east of the Proposed Action. Variation 6, Daniels Canyon would pass through Daniels Canyons near Heber City, Utah.

## THREATENED AND ENDANGERED SPECIES

### METHODOLOGY

The Threatened and Endangered Species Technical Report is one of two technical reports on the biological resources that may be affected by the Rocky Mountain Pipeline Project (RMPP). The other report, Terrestrial and Aquatic Biology Technical Report (BLM 1981), addresses terrestrial and aquatic resources in general.

In order to fulfill the legal requirements of the Endangered Species Act of 1973, as amended, an official request was sent to the Fish and Wildlife Service on October 1, 1980 asking for a Section 7(c) species list for the Proposed Action and several of the alternatives identified at that time. On November 7, 1980, the original request was supplemented to request a list for the Northern Systems Alternative. On December 24, 1980, another request for a supplemental list was sent because of the addition of four new alternatives (West Salt Lake, Provo Canyon, Mill Creek, and Daniels Canyon Alternatives). A request for lists of state designated sensitive species was also sent to the wildlife agencies in each of the states that might be affected by the RMPP. Information contained herein, concerns itself with the species listed in response to the above requests.

State level legislation affording protection to endangered species has been approved in California. The states of Idaho, Nevada, Utah, and Wyoming protect most non-game wildlife under other statutes or regulations. Some of these species are of special concern because their restricted range, specific habitat requirements, and/or low population numbers make them vulnerable to elimination from state if adverse impacts to population or habitat occur.



This report includes two major sections, affected environment and environmental consequences. The appendix contains copies of the memorandums from the Fish and Wildlife Service providing lists of threatened and endangered species in the area of the RMPP.

Threatened and endangered wildlife and plant species data were obtained from personnel in the U.S. Fish and Wildlife Service, Bureau of Land Management, and state wildlife management agencies. Some of the species descriptions under Affected Environment contain excerpts from the Threatened and Endangered Species Technical Report for the ETSI Coal Slurry Pipeline Project (BLM 1981).

### Definitions

The following definitions of terms are used to specify the Federal status of the species analyzed in this report.

#### Endangered

Endangered means any species which is in danger of extinction throughout all, or a significant portion of, its range other than a species of the Class Insecta determined by the Secretary of the Interior to constitute a pest, whose protection under the provisions of the Endangered Species Act would present an overwhelming and overriding risk to humanity (P.L. 93-205, Endangered Species Act 1973).

#### Threatened

Threatened means any species which is likely to become endangered within the foreseeable future throughout all, or a significant portion of, its range (P.L. 93-205, Endangered Species Act 1973).



## Candidate

Candidate is any species that the Fish and Wildlife Service has included for listing as the subject of a Federal Register Notice of Review; included in its program advice; or proposed, then withdrawn, because of the 2 year time limitation. The term has no legal status. Details of the review process are provided in P.L. 93-205 (Endangered Species Act 1973).

## **AFFECTED ENVIRONMENT**

### Plants

Many species of rare, endangered, and threatened species grow in unique or severe habitats. The adaptations and unique qualities that allow them to grow in these habitats quite often give the plants special properties that are unique to that particular species.

One of the reasons for protecting these species is that all of their special properties have not been investigated and it may be found that they possess medicinal or other properties that will be beneficial to future generations.

Protection of plants began with the passage of the Endangered Species Act of 1973, with the names of plants listed in the Federal Register. The December 15, 1980 issue of the Federal Register is used as the basis for plant status in this section. The Federal Register categories include endangered, threatened, and Currently under Review. The previous category of Candidate is still valid for those species listed as currently under review.

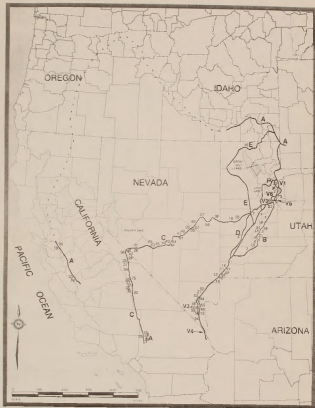
The State of Utah has two species that are listed as Endangered in the 1980 edition of the Federal Register, which may be affected by the proposed project. Other species listed are in the Federal Register candidate category or listed as recommended by Welsh and Thorne (1979). The State of Utah has not passed legislation to protect the plants which are identified as threatened or endangered.

Nevada has one federally listed threatened plant which does not occur near the proposed pipeline, its alternatives, nor variations, although a number of species listed as currently under review or Candidate are found along or near the proposed route, alternatives, and variations. Species listed as "protected" by the State of Nevada by the Nevada Forestry Division under NRS 527.270 are also listed. Species listed in California are protected by various state laws in addition to being federally listed. No threatened or endangered species would occur near the Proposed Action or alternatives in Wyoming or Idaho.

The BLM and the FS recognize all categories of Federal and state plant listings and will take measures for their protection on Federal lands until a species has been removed from the list. Species located on other lands will be the responsibility of the proponent.

Map 1 indicates the plants that have been identified as being in the vicinity of the proposed action, alternatives, and variations.

The following is a narrative list of potentially affected threatened, endangered, or candidate plants provided by the Fish and Wildlife Service under Section 7 consultation procedures; plant lists from Utah, Wyoming, Idaho, and Nevada publications and the California Native Plant Society map volumes were also reviewed. Additionally, local studies and environmental statements were reviewed and individuals contacted regarding location or knowledge of threatened or endangered plants.



MAP 2 THREATENED AND ENDANGERED PLANT SPECIES LOCATION MAP

LEGEND  
FEDERAL AND STATE LISTING  
OF  
INDICATED AND ENDANGERED PLANTS

0. Lycopersicon peruvianum
1. Sonchella oleracea
2. Helianthus annuus
3. Eragrostis amabilis
4. Brassica oleracea
5. Helianthus annuus var. peruvianus
6. Helianthus annuus
7. Brassica oleracea
8. Helianthus annuus
9. Helianthus annuus
10. Helianthus annuus
11. Helianthus annuus
12. Brassica oleracea
13. Brassica oleracea
14. Brassica oleracea
15. Brassica oleracea var. peruviana
16. Brassica oleracea
17. Brassica oleracea
18. Brassica oleracea
19. Brassica oleracea
20. Brassica oleracea
21. Brassica oleracea
22. Brassica oleracea
23. Brassica oleracea
24. Brassica oleracea
25. Brassica oleracea
26. Brassica oleracea

- 27. Penstemon bicolor spp. bicolor
- 28. Puccinellia parishii
- 29. Cymopterus deserticola
- 30. Oryctes nevadensis
- 31. Sidalcea covillei
- 32. Perityle inyonensis
- 33. Celtis reticulata
- 34. Loeflingia squarrosa var. artemisiarum
- 35. Spartina gracilis
- 36. Eriogonum ampullaceum
- 37. Cryptantha interrupta
- 38. Haplopappus watsonii
- 39. Sphaeralcea caespitosa
- 40. Cryptantha hoffmannii
- 41. Cryptantha insolita
- 42. Opuntia pulchella
- 43. Penstemon arenarius
- 44. Astragalus funereus
- 45. Asclepias eastwoodiana
- 46. Allium passeyi
- 47. Trifolium andersonii ssp. beatleyae
- 48. Penstemon bicolor var. roseus
- \*49. Amsinckia vernicosa var. furcata
- 50. Lianthus arenicola
- 51. Astragalus nyensis
- 52. Astragalus geyeri var. triquetrus

53. Arctomecon californica
54. Agave utahensis var. eborispina
55. Cryptantha tumulosa
56. Pediocactus sileri
57. Astragalus callithrix
58. Townsendia aprica
59. Astragalus lentiginosus var. latus
- \*60. Amsinckia grandiflora
61. Astragalus uncialis
62. Coryphantha vivipara var. rosea
63. Lesquerella hitchcockii
- \*64. Primula capillaris
65. Machaeranthera leucanthemifolia
- \*66. Cirsium crassicle
- \*67. Cordylanthus mollis ssp. hispidus
- \*68. Cordylanthus palmatus
- \*69. Eriogonum truncatum
- \*70. Eriogonum vestitum
- \*71. Eryngium racemosum
- \*72. Lasthenia conjugens
- \*73. Tropidocarpum capparideum
74. Amsinckia vernicosa var. furcata
75. Astragalus geyeri var. geyeri
76. Puccinellia parishii

\* Federally listed species located outside project area.



Astragalus ampullarius

Location: Kane and Washington Counties, Utah; Coconino and Mohave Counties, Arizona. Found at elevations between 3,200 and 5,400 feet.

Habitat: Chinle and tropic shale formations, clay soils; mixed desert shrub and scattered juniper community.

Location mapped by S.L. Welsh and K.H. Thorne (BLM-FWS-FS 1979) indicates that the species would be located outside the Proposed Action corridor.

Status: Currently under review (Federal Register, 1980).

Agave utahensis var. eborispina

Location: Known from Sunrise Mountain east of Las Vegas, the Spotted Range, the Mercury Ridge, the Ranger Mountains, and the Buried Hills of the Nevada test site. Also found in the northeast foothills of the Spring Mountain and Sheep Ranges. Found at elevations of 3,000 to 7,000 feet.

Habitat: Limestone and dolomite ridges of southern Nevada (Westec Services, Inc. 1980).

The Proposed Action corridor would be located near the known range of the plant.

Status: Currently under review (Federal Register, 1980).

Allium passeyi

Location: Box Elder County, Utah. Found at elevations of 4,800 feet.

Habitat: Ancient lake shore alluvial deposits, shallow lithosolic soil (to 6 inches deep), over dolomite limestone outcrops.

Location mapped by Welsh and Thorne (1979) indicates a probability that the West Salt Lake Alternative would cross habitat similar to that occupied by the species.

Status: Currently under review (Federal Register, 1980).

Amsinckia grandiflora

Location: According to the 1981 California Native Plant Society records in Sacramento, this species is located south of the Brentwood Compressor Station.

Status: Currently under review (Federal Register, 1980). Listed as rare and endangered in California.

Amsinckia vernicosa var. furcata

Location: Found near Interstate 5 south of San Louis Reservoir.  
(California Native Plant Society records 1981).

This species would be located a considerable distance from the Northern Systems Alternative. It would not be located within the Proposed Action corridor.

Status: Currently under review (Federal Register, 1980).

Arctomecon californica

Location: Found in southern Nevada, adjacent Arizona, and southwestern Utah. It grows on gypsum soils within its range at elevations between 1,300 and 1,900 feet. There are often large populations scattered throughout the Las Vegas Valley from southwest to northeast, with a few populations in the northwest part of the valley.

Habitat: In some cases, these populations are quite large, similar to the population found near the Pabco Gypsum and Rainbow Gardens gypsum plant near Lake Mead (Westec Services Inc. 1980). The species could be found within the same habitat as that found within the Proposed Action corridor.

Status: Currently under review (Federal Register, 1980).

Arctomecon humilis

Location: Washington County, Utah. Found at elevations of 2,300 to 3,000 feet.

Habitat: Moenkopi Formation, on alluvium and sandy clay soil, rolling low hills, bluffs; warm desert shrub community, open desert.

The location mapped by Welsh and Thorne (1979) indicates that habitat similar to that occupied by the species would be traversed by the Proposed Action.

Status: Endangered (Federal Register, 1980).

Asclepias eastwoodiana

Location: Esmeralda, Lander, and Nye Counties, Nevada (Mozingo and Williams, BLM-FWS 1980). Found at elevations of 5,300 to 6,900 feet.

Habitat: Low alkaline clay hills or shallow, gravelly drainages; usually growing apart from other plants.

Species as located by A. Pinzel (1978) is within the 1-mile wide corridor for the Central Nevada Alternative, south of Tonopah, Nevada.

Status: Currently under review (Federal Register, 1980).

Astragalus callithrix

Location: Mineral and Nye Counties, Nevada and Millard County, Utah (Mozingo and Williams 1980).

Habitat: Deep sandy soil on the valley floor or in dunes.

Location mapped by Pinzel (1978) indicates the species would be located within the Central Nevada Alternative corridor, near Warm Springs, Nevada.

Status: Currently under review (Federal Register, 1980).

Astragalus desereticus

Location: Sanpete County, Utah. Found at elevations from 6,000 to 6,500 feet.

Habitat: Dry hillsides; sagebrush and scattered pinyon-juniper community.

Locations mapped by Welsh and Thorne (1979) indicate that the species occupies habitat similar to that which would be crossed by the Proposed Action.

Status: Species currently under review (Federal Register, 1980).

Astragalus funereus

Location: Nye County, Nevada and Inyo County, California (Mozingo and Williams 1980). Found at elevations of 3,200 to 7,500 feet.

Habitat: Unstable, usually steep, gravelly slopes of volcanic tuff or occasionally on limestone screes.

Location mapped by Pinzel indicates the species may be located within the Central Nevada Alternative corridor, south of Tonopah, Nevada.

Status: Currently under review (Federal Register, 1980).

Astragalus geyeri var. geyeri

Location: North of Independence and east of the Los Angeles aqueduct. California Native Plant Society records (1981).

Habitat: The species is located in an area which would be a considerable distance from the Central Nevada Alternative, Owens Valley segment.

Status: No Federal listing. Listed as rare in California.



Astragalus geyeri var. triquetrus

Habitat and Location: Found only in the area of the confluence of the Virgin, Muddy, and Colorado Rivers from Beaver Dam to the Valley of Fire. It occurs in sandy flats at elevations between 1,500 to 2,000 feet (Westec Service, Inc. 1980).

This description would place the species outside the Proposed Action pipeline corridor.

Status: Currently under review (Federal Register, 1980).

Astragalus lentiginosus var. latus

Location: Elko and White Pine Counties, Nevada (Mozingo and Williams 1980). Found at elevations of 7,500 to 9,500 feet.

Habitat: Brushy or open gravelly slopes, limestone. Associated plants: pinyon-juniper.

The Sanpete Valley Alternative would cross habitat similar to that occupied by the species.

Status: Currently under review (Federal Register, 1980).

Astragalus nyensis

Habitat: Found in the foothills of the Spotted Range on the Nevada Test Site, Moapa, Indian Springs, the alluvial fan descending from Lee Canyon, and in the vicinity of Riverside on the Virgin River between elevations of 1,500 and 3,500 feet (Westec Service, Inc. 1980).

Location by A. Pinzel (1978) places the species west of Moapa and well outside of the Proposed Action corridor.

Status: No longer under review. (Federal Register, 1980).

Astragalus pterocarpus

Location: Humboldt, Pershing, and Lander Counties, Nevada. Found at elevations of 4,000 to 4,620 feet.

Habitat: Low-gullied hills, and saline, sandy flats (Mozingo and Williams 1980).

Locations mapped by Pinzel (1978) indicate the species would be located in northern Nevada, near Battle Mountain, but outside project area.

Status: Currently under review (Federal Register, 1980).

Astragalus uncialis

Location: Nye County, Nevada. Found at elevations of 5,300 to 6,050 feet.

Habitat: Dry knolls and slopes, saline sand or gravelly which is derived from limestone (Mozingo and Williams 1979).

Locations mapped by Pinzel (1978) indicate the species could be within the Central Nevada Alternative corridor near Black Rock Summit and Currant, Nevada.

Status: Currently under review (Federal Register, 1980).

Atriplex patula ssp. spicata

Careful search of the California Native Plant Society records revealed that this species would not found within the California portion of the Central Nevada Alternative.

Status: Currently under review (Federal Register, 1980).

Chorizanthe spinosa

Location: North of Adelanto, California, and west of Highway 395 (California Native Plant Society records 1981).

Habitat: Species would be found in the area adjacent to the Central Nevada Alternative.

Status: Currently under review (Federal Register, 1980).

Coryphantha vivipara var. rosea

Location: Clark, Eureka, Lincoln, Nye, and White Pine Counties, Nevada; Arizona; and California (Mozingo and Williams 1980). Found at elevations of 3,800 to 9,000 feet.

Habitat: Gravelly limestone or volcanic slopes and brushy hillsides.

The locations mapped by Pinzel (1978) would place this species outside the Central Nevada Alternative corridor.

Status: Currently under review (Federal Register, 1980).

Cryptantha insolita

Location: Clark County, Nevada, and lower part of the Upper Sonoran Zone. Found at elevations of 1,000 to 2,000 feet.

Habitat: Not definitely known, as species may be extinct (Mozingo and Williams 1980). Possible occurs on clay soils with gypsum outcrops.

Locations mapped by Pinzel (1978) indicate the species may be found north of Las Vegas and outside the Proposed Action corridor.

Status: Listed as threatened with extinction; protected by State of Nevada, (NRS) 527.270; currently under review (Federal Register, 1980).

Cryptantha interrupta

Location: Elko, Eureka, and White Pine Counties, Nevada. Found at elevations of 4,900 to 7,900 feet.

Habitat: Rocky hillsides, sandy or clay soils. Species is found associated with sagebrush and pinyon-juniper types (Mozingo and Williams 1980).

Location mapped by Pinzel (1978) places the species north of Ely, Nevada and outside the Central Nevada Alternative corridor.

Status: Watch list (Reno T/E Workshop, November 2, 1979). No longer under review (Federal Register, 1980).

Cryptantha hoffmannii

Location: Esmeralda, Mineral, and Nye Counties, Nevada, and Inyo County, California. Found at elevations of 6,000 to 6,400 feet.

Habitat: Volcanic soils, rocky open slopes, or on diatomite (Mozingo and Williams 1980).

Location mapped by Pinzel (1978) indicates the species has a high probability of being located within the Central Nevada Alternative corridor, west of Warm Springs, Nevada.

Status: Currently under review (Federal Register, 1980).

Cryptantha tumulosa

Location: Clark County, Nevada to Inyo County, California. Found at elevations from 5,000 to 10,200 feet.

Habitat: Species is commonly found in pinyon-juniper woodland in Clark County. Populations exist on almost every major mountain range in this area (Westec Services, Inc. 1980).

The distribution and the location of this species as mapped by Pinzel (1978) places it at higher elevations than would be traversed by the Proposed Action and alternatives.

Status: Currently under review (Federal Register, 1980).

Cuscuta warneri

Location: Millard County, Utah. Found at elevations of 4,630 feet.

Habitat: Alluvium, sandy soil; desert shrub community.

The location mapped by Welsh and Thorne (1979) places the species near Delta, Utah. Similar habitat would be traversed by the Sevier-Escalante Desert Alternative.

Status: Species thought to be extinct (Federal Register, 1980).

Cymopterus coulteri

Location: Sanpete, Sevier, and Juab Counties, Utah. Found at elevations from 2,000 to 5,800 feet.

Habitat: Arapien shale formation, barren foothills, gravelly to clay soil. Found in black sagebrush and shadscale communities.

Species would not be affected by the Proposed Action route near Juab and Sanpete Counties. The location of the habitat near Gunnison, Utah as mapped by Welsh and Thorne (1979) could be affected by the Sanpete Valley Alternative. Further investigation would be required.

Status: Currently under review (Federal Register, 1980).

Draba sobolifera

Location: Piute and Garfield Counties, Utah. Found at elevations from 7,500 to 12,000 feet.

Habitat: Modified tertiary igneous gravel and gravelly soils. Found at timberline in ponderosa pine and mountain shrub communities.

The mapped location and habitat described by Welsh and Thorne (1979) places the species at higher elevations than would be traversed by the Sanpete Valley Alternative; no impacts are anticipated.

Status: Currently under review (Federal Register, 1980).



Echinocereus engelmannii var. purpureus

Location: Washington County, Utah. Found at elevations of 2,900 feet.

Habitat: Navajo Sandstone Formation, sandy clay soil; desert shrub community.

The mapped location and habitat described by Welsh and Thorne (1979) indicates that the species may occur along habitat similar to that which would be traversed by the Proposed Action.

Status: Currently under review (Federal Register, 1980).

Eriogonum eremicum

Location: Millard County, Utah. Found at elevations from 5,400 to 6,200 feet.

Habitat: Sevy dolomite, gravel, clay, and limestone; rolling hills and flats; semidesert shrub community.

Location mapped by Welsh and Thorne (1979) indicates that the species occupies habitat similar to that which would be crossed by the Central Nevada Alternative in the vicinity of Highway 6 and the Confusion Range.

Status: Currently under review (Federal Register, 1980).



Eriogonum nanum

Location: Millard County, Utah. Found at elevations from 5,000 to 5,800 feet.

Habitat: Quaternary lacustrine deposits, saline marly playa remnant; salt desert shrub community.

The location mapped by Welsh and Thorne (1979) indicates the species occupies habitat similar to that which would be crossed by the Central Nevada Alternative.

Status: No longer under Federal review (Federal Register, 1980).

Eriogonum ostlundii

Location: Piute and Sevier Counties, Utah. Found at elevations from 4,300 to 6,500 feet.

Habitat: Clay hills and slopes; cool desert shrub and pinyon-juniper communities along the river.

The Sanpete Valley Alternative would parallel the Sevier River; thus it may affect the species as mapped by Welsh and Thorne (1979).

Status: Currently under review (Federal Register, 1980).

Eriogonum vestitum

Location: South of Capita Canyon near Interstate 5 (California Native Plant Society 1981). Species is located near the Northern Systems Alternative route.

Habitat: The species is found in habitat similar to that which would be crossed by the Northern Systems Alternative.

Status: Currently under review (Federal Register, 1980).

Erigeron albajoensis

Location: Garfield, Piute, San Juan, and Sevier Counties, Utah. Found at elevations from 6,000 to 9,196 feet.

Habitat: Pink limestone member of the Wasatch Formation and other igneous substrates; clay loam. Found in pinyon-juniper, oakbrush, and pine woods communities.

The location mapped by Welsh and Thorne (1979) places the species on the east side of the valley near Monroe, Utah; the Sanpete Valley Alternative would traverse the west side of the valley. Because of the distance, impact to the species would be highly improbable.

Haplopappus watsonii

Location: Near Highway 6 east of Sacramento Pass, Nevada (Pinzel 1978).

Habitat: Barren rocky outcrops, pinyon-juniper. Elko, Lincoln, Mineral, Nye, and White Pine Counties, Nevada (Mozingo and Williams 1980).

Species may be found along the Central Nevada Alternative route.

Status: Species is no longer under review (Federal Register, 1980).

Lesquerella garrettii

Location: Salt Lake and Wasatch Counties, Utah. Found at elevations from 9,700 to 11,330 feet.

Habitat: Clefts of rocks on mountain sides; subalpine meadow, mountain shrub and pine communities.

The location mapped by Welsh and Thorne (1979) indicates that the species would not be affected by the Proposed Action but might be affected by the Provo Canyon Alternative corridor.

Status: Currently under review (Federal Register, 1980).

Lesquerella hitchcockii

Location: Clark, Nye, and White Pine Counties, Nevada. Found at elevations from 7,000 to 11,500 feet.

Habitat: Loose limestone, rocky, gravelly soil, talus slopes. These plants are widely distributed in remote areas and at this time there is no real threat to the species survival (Mozingo and Williams 1980).

The location mapped by Pinzel indicates the species is in an area north of the Central Nevada Alternative and would not be affected by the project.

Status: Currently under review (Federal Register, 1980). Watch list (Reno T/E Workshop, November 2, 1979).

Linanthus arenicola

Location: Found in the Mojave Desert from Barstow to Frenchman and Jackass Flats on the Nevada Test Site in Nye County and as far east as the Virgin and Colorado Rivers in Clark County, Nevada. Found at elevations from 500 to 4,000 feet.

Habitat: Sandy alkaline playas and flats of the Mojave Desert, deep and sandy soils.

The Proposed Action and the East Las Vegas Variation could traverse the species habitat near Eldorado Dry Lake.

Status: Not currently proposed for Federal listing (Westec Services, Inc. 1980).

Lupinus jonesii

Location: Washington County, Utah. Found at elevations from 5,800 to 7,000 feet.

Habitat: Alluvium, sandy or limestone soil; pinyon-juniper and mountain brush communities.

The mapped location and habitat described by Welsh and Thorne (1979) indicates that the species would not be located near the Proposed Action corridor.

Status: Currently under review (Federal Register, 1980).

Machaeranthera kingii

Location: Cache, Salt Lake, and Utah Counties, Utah. Found at elevations from 6,200 to 11,750 feet.

Habitat: Cliff faces, talus slopes, and gravelly, north-facing slopes; Douglas fir, and white fir communities.

Locations mapped by Welsh and Thorne (1979) indicate the Daniels Canyon Variation would traverse habitat similar to that occupied by the species.

Status: Currently under review (Federal Register, 1980).

Machaeranthera leucanthemifolia

Location: Lincoln, Mineral, Nye, and Pershing Counties, Nevada; California (Mozingo and Williams 1980). Found at elevations from 2,200 to 6,000 feet.

Habitat: Fine gravelly soil and outwash fans.

The location mapped by Pinzel (1978) places the species outside the Central Nevada Alternative route; therefore, it would not be affected by the project.

Status: Watch list (Reno T/E Workshop, November 2, 1979). No longer under Federal review (Federal Register, 1980).

Mentzelia argillosa

Location: Sevier and Sanpete Counties, Utah. Found at elevations of 5,600 feet.

Habitat: Arapien shale formation, clay soil; salt desert shrub community.

Habitat similar to that mapped by Welsh and Thorne (1979) would be traversed by the Sanpete Valley Alternative near Richfield, Utah.

Status: Currently under review (Federal Register, 1980).

Opuntia pulchella

Location: Churchill, Esmeralda, Humboldt, Lander, Lyon, Mineral, Nye, Pershing, and Washoe Counties, Nevada; Arizona and Utah. This cactus is widely distributed but not common at any one place (Mozingo and Williams 1980).

Habitat: Big sagebrush and shadscale communities.

Locations mapped by Pinzel (1978) indicate that this species is near Highway 6, east of Tonopah, Nevada. Final pipeline location would determine possible impact to the species.

Status: Threatened (Pinzel 1978); watch list (Reno T/E Workshop, November 2, 1979). No longer federally listed (Federal Register, 1980).

Pediocactus sileri

Location: Washington County, Utah and Mojave County, Arizona. Found at elevations from 3,000 to 5,000 feet.

Habitat: Moenkopi formation, sandy, gypsiferous, seleniferous, calciferous soils high in soluble salts; desert shrub communities.

The location mapped by Welsh and Thorne (1979) places the species east of the Proposed Action corridor and away from any possible impacts.

Status: Endangered (Federal Register, 1980).



Penstemon arenarius

Location: Churchill Mineral and Nye Counties, Nevada. Found at elevations from 3,990 to 4,400 feet (Mozingo and Williams 1980).

Habitat: Sandy areas, sometimes with dark gravel pavement.

The location near Tonopah, Nevada, mapped by Pinzel (1978) indicates the species is located considerably north of the Central Nevada Alternative.

Status: Threatened (Reno T/E Workshop, November 2, 1979); currently under review (Federal Register, 1980).

Penstemon bicolor ssp. bicolor

Location: Clark County, Nevada and Arizona (Mozingo and Williams 1980).

Habitat: On slight elevations, in shallow, gravelly washes and roadsides. Species habitat may be affected by the Proposed Action but the species appears to thrive on disturbed areas; thus, it may not really be susceptible to impact from construction disturbance.

Status: Currently under review (Federal Register, 1980).

Penstemon bicolor ssp. roseus

Location: Eldorado, McCullough, and Arrow Ranges, Nevada. Found at elevations between 2,000 and 4,000 feet.

Habitat: Washes at the intersection of limestone or igneous bedrock (Westec Services, Inc. 1980).

The species is found near Nelson, Nevada which is outside the Proposed Action corridor.

Status: Currently under review (Federal Register, 1980).

Penstemon garrettii

Location: Duchesne and Wasatch Counties, Utah. Found at elevations between 5,700 and 5,900 feet.

Habitat: Travertine rocks, submontane zone in the crevices of the rocks; exposed places near hot pots.

Location mapped by Welsh and Thorne (1979) indicates the Proposed Action would traverse an area near Hot Springs where the species is located.

Status: Species currently under review pending submission of additional data (Federal Register, 1980).

Penstemon tidestromii

Location: Sanpete and Juab Counties, Utah. Found at elevations from 5,600 to 8,200 feet.

Habitat: Desert shrub, sagebrush, snowberry, and juniper communities on a variety of substrates.

Location mapped by Welsh and Thorne (1979) indicates that the Proposed Action, the Central Nevada Alternative, and the Sevier-Escalante Desert Alternative would traverse habitat similar to that occupied by the species.

Status: Currently under review (Federal Register, 1980).

Penstemon wardii

Location: Sanpete and Sevier Counties, Utah. Found at elevations between 5,250 and 6,400 feet.

Habitat: Arapian, Shale, Bald Knoll, and Colton formations, clay shale hills; pinyon-juniper and greasewood communities.

Location mapped by Welsh and Thorne (1979) places the habitat outside the Sanpete Valley Alternative corridor.

Status: Currently under review (Federal Register, 1980).

Phacelia anelsonii

Location: Clark and Lincoln Counties, Nevada; Inyo and San Bernardino Counties, California; and Washington County, Utah. Found at elevations of 2,500 to 5,000 feet.

Habitat: Shaded places in rich soil at the base of sandstone or limestone cliffs or among rocks or in sandy and gravelly washes; warm desert shrub and Joshua tree communities.

Although this species is widely distributed, it is scarce at any one location. (Mozingo and Williams 1980). The location mapped by Pinzel places the species outside the Proposed Action corridor in Nevada. Species location and habitat described by Welsh and Thorne place it near the Proposed Action in Washington County, Utah.

Status: Currently under review (Federal Register, 1980).

Phacelia argillacea

Location: Utah County, Utah. Found at elevations of 6,600 feet.

Habitat: Green River Shale Formation, detritus slopes, rocky clay soil; grassland and scattered mountain shrub community.

Location mapped by Welsh and Thorne (1979) indicates that the Mill Creek Variation would traverse habitat similar to that occupied by the species.

Status: Recommended as threatened by Welsh and Thorne (1979). Not protected under Federal or state law.

Phacelia utahensis

Location: Carbon, Sanpete, and Sevier Counties, Utah. Found at elevations from 5,600 to 5,700 feet.

Habitat: Arapien shale formation, clay hills and banks; salt desert shrub community.

The Sanpete Valley Alternative would traverse vegetative habitat near Richfield, Utah, similar to that mapped for the species by Welsh and Thorne (1979).

Status: Currently under review (Federal Register, 1980).

Phlox gladiiformis

Location: Garfield, Iron, and Washington Counties, Utah. Found at elevations from 6,000 to 8,000 feet.

Habitat: Pink limestone member of the Wasatch Formation, heavy clay soil, gravelly; scattered yellow pine forest community.

Location mapped by Welsh and Thorne (1979) indicates that the species may occupy habitat similar to that which would be crossed by the Proposed Action in the vicinity of Bull Valley Mountains near Enterprise, Utah.

Status: Currently under review (Federal Register, 1980).

Primula capillaris

Location: Elko County, Nevada. Found at elevations between 9,500 and 10,000 feet.

Habitat: Headwaters of a creek, granitic rock (Mozingo and Williams 1980).

Only known location of this species is in the Ruby Mountains near Elko which is located outside the project area (Pinzel 1978).

Status: Currently under review (Federal Register, 1980).

Puccinellia parishii

Location: South of Cramer Junction near Highway 395 (California Native Plant Society records 1981).

Habitat: Habitat is similar to that which would be crossed by the Northern Systems Alternative.

Status: Currently under review (Federal Register, 1980).

Sclerocactus polyancistrus

Location: Esmeralda, Mineral, and Nye Counties, Nevada. Arizona and California (Mozingo and Williams 1980). Inyo Mountain Slopes (California Native Plant Society records 1981).

Habitat: Desert flats, mesas, rocky slopes and knolls. This perennial cactus is rare but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time. It is endangered in a portion of its range, is declining in number, and is rare outside California.

According to Pinzel (1978) the species occupies habitat similar to that which would be crossed by the Central Nevada Alternative. However, because the alternative would traverse the lower lands near Highway 6, the probability that construction would affect the species is low.

Status: Currently under review (Federal Register, 1980).

Sclerocactus pubispinus

Location: Box Elder, Beaver, Juab, Millard, Sevier, and Tooele Counties, Utah; Elko and White Pine Counties, Nevada. Found at elevations between 5,000 and 6,000 feet.

Habitat: Ancient shoreline and islands of Pleistocene Lake, rocky soil of hillsides.

Location mapped by Welsh and Thorne (1979) place the species outside the project area although the habitat description indicates that similar soils and topography would be traversed in Millard and Beaver Counties, Utah.

Status: Currently under review (Federal Register, 1980).



Sidalcea covillei

Location: Independence, California (California Native Plant Society records 1981).

Habitat: Heavily dependent on ground water; only suitable habitat is on the City of Los Angeles Department of Water and Power lands (Benton Grazing EIS 1980).

The probability would be low that the habitat would be affected unless the proposed route crossed the wetlands near Independence, California.

Status: Currently under review (Federal Register, 1980).

Spartina gracilis

Location: Near Highway 395 north of Benton, California (California Native Plant Society records 1981).

Habitat: Species may be located near the Central Nevada Alternative pipeline corridor.

Status: Listed as rare in California but common elsewhere. (Protected in the state of California.) No Federal listing.

Sphaeralcea caespitosa

Location: Nye County, Nevada and Beaver and Millard Counties, Utah. Found at elevations of 5,000 to 6,500 feet. According to Pinzel (1978), species is located north of Highway 6 near Big Spring, Nevada. This species is extremely localized in Nevada (Mozingo and Williams 1980).

Habitat: Gravelly limestone soil, sometimes on sandy soil.

The Central Nevada Alternative would pass within the vicinity of the species as located by Pinzel.

Status: Currently under review (Federal Register, 1980).

Townsendia aprica

Location: Sevier County, Utah. Found at elevations between 6,500 and 8,000 feet.

Habitat: Arapien shale, scattered boulders in sandy soil; mixed pinyon-juniper grasslands community.

The location mapped by Welsh and Thorne (1979) indicates that the species would be outside the Proposed Action corridor.

Status: Currently under review (Federal Register, 1980).

Trifolium andersonii ssp. beatleyae

Location: Douglas, Humboldt, Mineral, Nye, and Storey Counties, Nevada and California (Mozingo and Williams 1980).

Habitat: Big sagebrush and pinyon-juniper communities.

The location mapped by Pinzel (1978) places the species within the Central Nevada Alternative corridor, west of Montgomery Pass, Nevada.

Status: Currently under review (Federal Register, 1980).

Tropidocarpum capparideum

Location: According to the California Native Plant Society records (1981), located near Byron Hot Springs.

Habitat: Species could be affected if the Northern Systems Alternative pipeline were routed near Byron Hot Springs, California.

Status: Currently under review (Federal Register, 1980). Considered rare and endangered in California.

The following species identified through FWS Section 7 consultation procedures were investigated using the California Native Plant Society records. These species were found to be outside the proposed pipeline corridor or did not occupy habitat similar to that crossed by the Proposed Action, alternatives, or variations.

<u>Species</u>		<u>Status</u>
<u>Puccinellia</u>	<u>parishii</u>	C
<u>Cymopterus</u>	<u>deserticola</u>	C
<u>Oryctes</u>	<u>nevadensis</u>	C
<u>Perityle</u>	<u>inyoensis</u>	C
<u>Celtis</u>	<u>reticulata</u>	CNP listing
<u>Loeflingia</u>	<u>squarrosa</u> var. <u>artemesiarun</u>	C
<u>Eriogonum</u>	<u>ampullaceum</u>	No longer under review
<u>Cirsium</u>	<u>crassicul</u>	C
<u>Cordylanthus</u>	<u>mollis</u> ssp. <u>hispidus</u>	C
<u>Cordylanthus</u>	<u>palmatu</u>	C
<u>Eriogonum</u>	<u>truncatum</u>	C
<u>Eryngum</u>	<u>racemosum</u>	C
<u>Lasthenia</u>	<u>conjugens</u>	C

(CNPS) California Plant Society

(FR) Federal Register

(C) Currently Under Review

#### Wildlife

#### Federally Listed Species

##### Mammals

The federally listed species discussed here are the black-footed ferret, the Utah prairie dog, and the San Joaquin kit fox.

Black-Footed Ferret: The black-footed ferret (Mustela nigripes) may be the rarest mammal on the North American continent (Gates 1973). Original range of the black-footed ferret and prairie dogs coincided in pre-settlement times. The black-footed ferret occupied almost all of the mid- and short-grass prairie region from Saskatchewan and Alberta in the north, to areas of New Mexico and Texas in the south (Gates 1973). Wyoming and Utah are the states in the range of the black-footed ferret which would contain components of the Rocky Mountain Pipeline Project (RMPP). The extreme western edge of the ferret's range lies close to the Proposed Action route at its northern end in Wyoming and Utah. Prairie dog towns, which are potential habitat for the black-footed ferret, could occur along the alignments of the Proposed Action, the Northern Systems Alternative, or the West Salt Lake Alternative.

The black-footed ferret was listed as endangered in March 1967 (Federal Register 1967).

The prairie dog is the ferret's main source of food. The effect of ferrets on prairie dog populations depends on the size of the town and the number of ferrets present. Parts of towns frequented by ferrets are thinly populated while densities are higher where ferrets are occasional. When a ferret is active during the day, the prairie dogs stay above ground. In this locality, the ferret may appear very aggravated; the prairie dogs frequently cover up the burrows in which ferrets are present or where there is a recent ferret odor. The ferrets seem to have no difficulty digging out of these situations (Snow 1972; Martin and Schroeder 1978).

Observations to date have been made of single adults and families. The female alone cares for the young, although occasionally the male may stay in the same town. Observers, to date, have been unable to study young ferrets until they appear aboveground, which is generally when they are about half grown. The young ferrets rarely appear during the daylight in the summer, although the female at times may sun-bathe. Both the young and the adult ferrets are primarily nocturnal. The behavior patterns of the different families that have been observed are essentially the same (Snow 1972).

Because very little population data is available, it is difficult to determine whether or not the total ferret population level is declining. The ferret apparently has never been common and has always been difficult to observe. Most ferrets have been observed in association with prairie dogs, and the reduction in prairie dog numbers is probably an indication of the reduction in numbers of ferrets (Snow 1972; Henderson, et al., 1974).

Utah Prairie dog: The range of the Utah prairie dog (Cynomys parvidens) is the most restricted of all prairie dogs in the United States. It is limited to the southwestern half of Utah. Prior to control programs, the species distribution extended from the west in Pine and Buckskin Valleys in Beaver and Iron counties, as far north as Nephi, southeast to Bryce Canyon National Park, east to the foothills of the Aquarius Plateau and south to the northern borders of Kane and Washington counties. The present distribution is confined in much smaller areas in southwestern Beaver County, southeastern Iron County, northeastern and south central Sevier County, eastern Piute County, western Wayne County, and Western Garfield County. None of these areas lie in the proximity of the Proposed Action or its alternatives. Populations have decreased from an estimated 95,000 in 1920 (Collier and Spillet 1973) to 2,887 censused in 1979 (Heggen and Hasenyager 1979). Refer to table 1 for estimated population dispersement.

The Utah prairie dog was listed as endangered in June 1973 (Federal Register, 1973).



Table 1

Population Estimates of Utah Prairie Dogs  
1920-1972, and Population Censuses, 1975-1979.

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Date	Estimate	Author
1920	95,000	Collier and Spillett 1973
1970	8,800	Collier and Spillett 1973
1971	5,700	Collier and Spillett 1973
1972	3,300	Collier and Spillett 1973
Fall 1975	2,975	Heggen and Hasenyager 1977
Spring 1976	2,153	Heggen and Hasenyager 1977
Fall 1976	2,278	Heggen and Hasenyager 1977
Spring 1977	2,336	Heggen and Hasenyager 1977
Fall 1977	3,429	Heggen and Hasenyager 1977
Spring 1978	3,361	Heggen and Hasenyager 1977
Spring 1979	2,887	Heggen and Hasenyager 1977

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Reproduction of Utah prairie dogs occurs annually in the early spring. The gestation period is approximately 30 days. Pups are most commonly born in middle to late April. The litter size ranges from three to eight.

Predation on Utah prairie dogs appears to occur primarily from badgers, coyotes, weasels, and raptors. In established colonies, predators apparently do not exert a controlling influence on the population density (Collier and Spillett 1971).

Prairie dog towns appear to be best suited to swale type formations at low elevations (7,260 feet or lower), where moist herbage is available even during drought periods. A correlation exists between the presence of water and prairie dog density. Because prairie dogs get most of their water from plants, the influence of water is probably related to the amount of moisture in the vegetation (Crocker-Bedford 1975).

Soil characteristics are important to prairie dogs towns for several reasons. A well-drained area is necessary for home burrows to prevent flooding, because Utah prairie dogs usually do not build mounds around their holes. The soil should be deep enough to allow burrowing depths which provide protection from predators and insulation from environmental temperature extremes. Soil color may aid in disguising prairie dogs from surface predators (Turner 1979).

The predominant vegetative height within the colony must be low enough to allow standing prairie dogs to scan their environment for predators. (Crocker-Bedford 1975).

Prairie dogs are predominantly herbivores but also eat cicadid insects when they are available. Alfalfa and grasses are preferred food items during all seasons. The flowers and seeds of forbs are also preferred. The daily food consumption at a prairie dog town is greatest during late spring when a large number of animals are feeding. Prairie dogs feed very little from November through the middle of February.

Several factors caused the decline in prairie dog numbers. Climatological changes were instrumental in constricting distribution. The western and major portion of the species range has become less favorable because of higher temperatures, drier climate, and the development of salt-shrub vegetative types. Drought has been a significant factor and has caused the elimination of several colonies (Collier and Spillett 1973).

Poisoning campaigns were conducted to eliminate prairie dog competition with the agricultural and ranching interests. Population reductions corresponded to periods of intensive poisoning which occurred around 1933, 1950, and 1960 (Collier and Spillett 1973).

The misuse of rangeland from overgrazing has caused a great reduction in the quality of prairie dog habitat. A vegetational shift from primarily grass to shrubs has reduced forage. Overgrazing practices and subsequent erosion has transformed swales to gullies. The water table was lowered to channel bed level, and succulent forage which supplied summer food for the dogs was eliminated (Crocker-Bedford 1975).

#### San Joaquin Kit Fox:

The San Joaquin kit fox is ecologically adapted to the desert shrub biome. Apparently a suitable den is a critical habitat requirement, as kit foxes use dens all year long. The habitat types in which dens are found varies.

Cahalane (1947) indicated that kit fox dens are usually found on flat ground, on a sand dune or near the crest of a small bank or arroyo wall. He believed these foxes live in a sandy plains habitat because of the rodents that live there.

Laughrin (1970) has noted an arid climate for San Joaquin kit fox habitat in California. While the vegetation varies, much of it being grassland primarily annual grasses primarily on the western side of San Joaquin Valley. Toward the southern end, perennial shrubs occur among the grasses, such as saltbush, seepweed, pickle-weed, iodine bush, alkali heath, and introduced tumbleweed. On the valley floor these species are intermixed.

Occupied dens can be recognized by mounds of fresh earth which are deposited at the entrances during the excavation of the den. Fresh scats, animal remains, and tracks are also present. Shallow forms in which these foxes rest in the shade of adjacent shrubs have also been observed near den entrances. Unoccupied dens can be recognized by a weathered appearance, rounded den entrances, and cobwebs across the tunnel openings.

Loss of suitable habitat appears to be a limiting factor for the San Joaquin kit fox. From 1960 to 1970 there was a 34% reduction in the native habitat of this fox. More acres are being put into cultivation every year, decreasing the amount of habitat available for the San Joaquin kit fox (Laughrin 1970).

The kit fox is basically nocturnal. Most hunting is done after dark, although kit foxes have been seen hunting as early as 1 hour before sunset (Laughrin 1970; Morrell 1972). The basic categories of food items are small mammals, small birds, small reptiles, amphibians, and insects. Prey varies with the area.

Little is yet known about the reproduction of kit foxes. Breeding season generally extends from late December through January and in some situations to early February. Gestation is assumed to be the same as for the red fox (49 to 55 days). In the southern deserts, kit foxes may be born as early as February, but most pups, farther north, are born in March or early April (Snow 1973).

#### Birds

The federally listed species discussed here are the bald eagle, whooping crane, and Yuma clapper rail. Also included is one candidate species, the least Bell's vireo.

Bald Eagle: The bald eagle (Haliaeetus leucocephalus) occurs throughout the United States and northward (FWS 1980). The eagle is found primarily along the coasts of North America and inland lakes and rivers from the gulf of Mexico, north to the Arctic (Snow 1973).

All states which would contain components of the RMPP are included in the range of the bald eagle. Locations of bald eagle habitat along the various pipeline routes are shown in table 2. These habitat areas are all in Utah and California, and eagles occurring there will be winter residents.

The bald eagle was listed as endangered throughout the 48 conterminous states in February, 1978 (Federal Register 1978), and except for the populations in Washington, Oregon, Minnesota, Wisconsin, and Michigan, which are classified as threatened.

Table 2

## Bald Eagle Habitat Along the Various Pipeline Routes

<u>Route Name</u>	<u>Milepost Location</u>	<u>Total Miles</u>
Proposed Action	49-52	3
	83-86	3
	155	1
	303-312	9
	358-360	2
	363-369	6
	380-383	3
	393-403	10
	Total	37
Sanpete Valley Alternative	128-133	5
	150-182	32
	Total	37
Central Nevada Alternative	484-487	3
Other Alternatives and Variations	<del>None</del>	<del>None</del>

The bald eagle has been afforded protection since the passage of the Bald Eagle Act in 1940 (Snow 1973). Along with its Federal status, the bald eagle is also protected by state laws in California, Idaho, Nevada, and Utah.

The bald eagle is associated primarily with riparian habitat, including coasts, rivers, and lakes, usually nesting near bodies of water where they feed. Selection of nesting sites varies depending on the species of trees, growing in a particular area. The tops of tall trees, either living or dead, are generally preferred. Regardless of this variation in sites, there are certain general elements which seem to be consistent: (1) the proximity of water (usually within a half mile with a clear flight path to a close point on the water); (2) the largest living tree in a span; and (3) an open view of the surrounding area. The proximity of good perching trees may also be a factor in site selection. An otherwise suitable site may not be used if there is excessive human activity in the area (FWS 1980).

Wintering bald eagles move southward and gather along rivers, lakes, wildlife refuges, and other places where food is available. Lakes and dams constructed on the Mississippi and the Missouri Rivers have modified the distribution of some wintering bald eagles (Snow 1973). The National Audubon Society's Continental Bald Eagle Project results (winter counts in January) indicated that wintering bald eagles concentrated in four areas: (1) approximately 1/3 of the entire continental United States population occurs in the Mississippi Valley; (2) 20 percent are found in the Northwest (Washington, Oregon, Idaho, and Montana; (3) 15 percent occur in Florida (a resident breeding population which is also present in winter); (4) 5 percent are located along the Middle Atlantic states, particularly the Chesapeake Bay Region (Snow 1973).



Eagles found at roosts during winter and at other times apparently have an attraction to particular trees and even to favorite limbs. These trees are usually large and open and have sufficient room for take off and landing, but they are not noticeably different from the other trees in the same general area. A favorite tree may hold several eagles before nearby trees are used (Sprunt 1972; Snow 1973).

During 1975 and 1976, the number of breeding pairs in the lower 48 states was estimated at 700 to 1,000. While the breeding season of bald eagles varies with latitude, the general tendency is for winter breeding in the south, with a progressive shift toward spring breeding in the north.

The former and present distributions of the bald eagle are essentially the same, but numbers in the continental U.S. are reduced from former abundance (Snow 1973). In some areas of the country, pesticide residues in eagles have apparently played a significant roll in their decline. Studies have shown that high residue levels, particularly of dieldrin, have lowered reproductive success by rendering the egg shells thin and easily broken. In other locations the most significant factors have probably been loss of feeding and nesting sites, and human disturbance during the nesting period. Additional factors responsible for the decline include illegal shooting and the loss of nest trees (FWS 1980).

Whooping Crane: The whooping crane (Grus americana) presently nests only in Woods Buffalo National Park, Canada. The whooping crane winters along the Gulf Coast of Texas on the Arkansas National Wildlife Refuge and adjacent peninsulas and islands. This bird's migratory route is nearly a straight line through west-central North and South Dakota, central Nebraska and Kansas, west-central Oklahoma and east-central Texas (Whooping Crane Recovery Team 1980).



Of the states in the historical range of the whooping crane, only Wyoming would contain components of the RMPP. However, a cross-fostering experiment is being conducted at Gray's Lake National Wildlife Refuge in Idaho, in which whooping crane eggs are incubated and hatched by greater sandhill cranes. The sandhill cranes rear and reintroduce the whooper chicks into the wild. A migrating population of whooping cranes which winters in the Bosque Del Apache National Wildlife Refuge in southern New Mexico has been established. During their migration flights, the cranes may cross the route of the pipeline in Idaho, Wyoming, or Utah. Small numbers of reintroduced whooping cranes have summered just north of Bear Lake National Wildlife Refuge and near the Bear River in the vicinity of Thatcher, Idaho (Loth 1981).

The whooping crane was listed as endangered throughout its range by the Department of the Interior in March 1967 (Federal Register 1967). Critical habitat for the whooping crane occurs in Nebraska, Kansas, and Oklahoma.

Yuma clapper rail: The Yuma clapper rail inhabits fresh water marshes and adjacent irrigation canals along the Colorado River from the Colorado River Delta, Mexico, north to Topock Marsh, Arizona. Its range also extends west to the Salton Sea, California and east to Picacho Reservoir, Arizona. The population probably exceeds 1,700 birds (Yuma Capper Rail Recovery Team 1977). Some small areas of habitat occur along the Colorado River from 10 to 15 miles north of Needles, California, but clapper rails have not been recorded there (Gould 1975).

Some of this habitat lies along the proposed route of the pipeline between MP 588 and MP 596. Smith (1974) determined that preferred rail habitat at the Havasu National Wildlife Refuge included mature cattail-bulrush stands in shallow water near high ground.

The Yuma clapper rail was listed as endangered throughout its range by the Department of the Interior in March 1967 (Federal Register 1967). In 1971, the California Fish and Game Commission, under authority of the California Endangered Species Act of 1970, included the Yuma clapper rail on the State's listing of endangered and rare fish and wildlife (Leach and Fish 1972).

Knowledge of migration patterns is limited to that relating to the period the rail occur in the United States. Rails reach their breeding areas along the lower Colorado River and Salton Sea starting in mid- to late April. Most of the population remains until mid-September and by October, most of the clapper rails have departed. Small numbers of rails may remain along the Colorado River during certain winters. Rails have been observed during the winter months in Topock Marsh, southeast of Needles, California (Yuma Clapper Rail Recovery Team 1977).

Rails are selective, opportunistic, and limited in their variety of foods by the habitat areas they occupy during migration (Ohmart and Tomlinson 1977). Crayfish are the main food of the Yuma clapper rail along the Colorado River. It also feeds on small fish, clams, isopods, snout beetles, water beetles, and other insects.

Destruction of habitat is probably the primary factor limiting the Yuma clapper rail. The preliminary findings of Ohmart and Smith (1973), indicate that the availability of crayfish may determine rail population density.

Least Bell's Vireo. The least Bell's vireo (Vireo bellii pusillus) has disappeared from approximately two-thirds of its former range, and has declined to less than 300 pairs in California. It is now found in scattered localities in southern California and northern Baja California and Mexico. Important habitat exists in portions of the following counties: Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Inyo, and San Diego.

This vireo is considered a candidate species by the FWS. Candidate species are not protected under the Endangered Species Act but are included here because they may become formally proposed and be listed during the pipeline construction period.

None of the most significant habitat sites for the least Bell's vireo are within the area of the RMPP Proposed Action, its alternatives, or variations. The closest of these areas lies about 40 miles south of the southern extremity of the Central Nevada Alternative.

The species occurs from near sea level to about 4,500 feet above sea level in coastal mountains, inland valleys, and desert areas, with a wide variety of geological and climatological conditions. About the only unifying physical feature is that all areas have a long, hot, and dry summer season and a short, mild winter, usually with limited precipitation.

While in California and northern Baja California during the breeding season, the least Bell's vireo stays in the vicinity of streams and springs where dense vegetation grows. Nesting, feeding, and brood rearing all occur in dense vegetation types such as willows, mule fat, wild rose, sycamore, and cat-claw. The vireo shares this habitat with a wide variety of other birds, mammals, amphibians, reptiles, and other groups of animals and plants.

Loss and degradation of the species' habitat are the principal causes of its decline, although nest parasitism by the brown-headed cowbird is implicated locally. Habitat loss is continuing, and this vireo could become extinct if an active program of habitat preservation and management is not implemented.

## Reptiles

The federally listed species discussed here are the desert tortoise and the blunt-nosed leopard lizard.

Desert tortoise: The desert tortoise (Gopherus agassizii) inhabits the Mojave and Sonoran deserts of the southwestern United States (Arizona, California, Nevada, Utah) and adjacent areas of Mexico as far south as southern Sonora. California, Nevada, and Utah contain desert tortoise range which could be crossed by the RMPP proposed route or alternatives.

The Beaver Dam Slope population of the desert tortoise in Utah was listed as threatened, and its habitat determined critical, in August, 1980 (Federal Register 1980). In 1971, Utah classified the desert tortoise as a protected species. The Beaver Dam slope tortoises inhabit about square 35 miles in the southwestern corner of Washington County, Utah. They constitute a unique population because they live in a transitional area between northern and southern faunas and, at least in part, are separated from tortoises in other parts of the species' range by mountains and other natural barriers. The Beaver Dam Slope population at one time may have numbered 2,000 but less than 350 remain (Bender 1980).

In Nevada the desert tortoise is a candidate species for Federal listing. It is also protected by a state regulation and is classified by the state as rare. Much of the area along the pipeline route across southeastern Nevada provides habitat for the desert tortoise. Population densities in the affected areas vary from 0 to 20, to more than 100 tortoises per square mile. The area south of Searchlight, Nevada, to the state line will be declared crucial habitat for the tortoise by the BLM. The estimated population in this area is 100 to 200 tortoises per square mile (Maley 1980).

In California, the desert tortoise is a state protected species, as well as a candidate species for Federal listing. High density tortoise habitat lies to the west and south of the Proposed Action and the Fort Mojave Variation (Berry and Nicholson 1979). Habitat would also occur on the alignment of the Northern Systems Alternative between Hinkley and Adelanto California, on the Central Nevada Alternative in California and along the Fort Mojave Variation.

Locations of desert tortoise habitat along the pipeline routes is shown in table 3.

Desert tortoises are most active from April through mid-July (Maley 1980). In early spring they leave their winter dens in the morning and feed near them until afternoon. They travel farther from the dens in late spring and find shade for afternoon protection under bushes and in small excavations. They often remain in these resting spots for the night. As daily temperatures begin to exceed 90°F., tortoises dig summer holes. They use these structures from about 10 a.m. until about 7 a.m. the following day, when they return to foraging on the surface. Feeding activity decreases greatly by mid-June, and most of the summer is spent in underground burrows. When the weather cools down (about September), the tortoises begin to migrate to the winter dens. They spend most of their time close to these dens until winter hibernation (Coomb 1974).

The decline in tortoise numbers is partly attributed to collecting by humans and to habitat changes. In the past, large numbers of tortoises were collected as pets. Reduction of perennial grasses on which the tortoises feed is the primary habitat change, and these plants are essential to tortoise survival and reproduction. Overgrazing by cattle and sheep has put an excessive stress on the plant communities and changed plant composition and density (BLM 1976).



Table 3  
Desert Tortoise Habitat along the Various Pipeline Routes

<u>Route Name</u>	<u>Milepost Location</u>	<u>Total Miles</u>
Proposed Action	441-493	52
	520-540	20
	551-580	29
	Total	101
Northern Systems Alternative	Vicinity of Helendale, CA	2
Central Nevada Alternative	610-621	11
	648-665	13
	Total	24
Fort Mojave Variation	30-59	29
Other Alternatives and Variations	None	None

Blunt-Nosed Leopard Lizard: The blunt-nosed leopard lizard (Crotaphytus silus) was originally found in the San Joaquin Valley and adjacent foothills for San Joaquin County, southward and into San Luis Obispo County.

It is now found in scattered locations in the San Joaquin Valley, the foothills of Tulare and Kern Counties, and the eastern portions of the Coast Range foothills; Fresno, Kern, Madera, Merced, San Luis Obispo, and Tulare Counties (Stebbins 1954; U.S. Department of the Interior 1968; California Department of Fish and Game 1972).

The blunt-nosed leopard lizard was listed as endangered throughout its range by the Department of the Interior in March 1967 (Federal Register 1967). Supplemental protection is provided by the State of California which also classifies this lizard as endangered.

Habitat for the blunt-nosed leopard lizard may exist along the route of the Northern Systems Alternative of the RMPP in Merced and Fresno Counties. Montanucci (1965) listed specific areas where lizards and/or suitable habitat were located in 1965. The area closest to the route of the Northern Systems Alternative is 20 miles south of Dos Palos or just north of the route in the vicinity of mileposts 103 to 105.

Population numbers are not known; however, Shepparts (1970) considered the mean density of lizards to be 100 per square mile.

The blunt-nosed leopard lizard occurs in sparsely vegetated plains, alkali flats, low foothills, canyon floors, large washes and arroyos. It is usually found in a sandy location but sometimes in coarse, gravelly soil and hardpan.



It prefers places with scattered low bushes, but otherwise open habitat. In areas heavily covered with Atriplex polycarpa or Allenrolfea occidentalis it is absent or scarce, presumably because of reduction in speed while running.

Population density is somewhat correlated with the abundance of mammal burrows, primarily those belonging to kangaroo rats and abandoned squirrel burrows. Lizards may also be found in abandoned badger dens and gopher burrows. Temporary cover such as rock piles, trash piles, and brush are used by immature lizards, but adults will usually enter burrows for safety (Montanucci 1965, 1970; Stebbins 1954; California Department of Fish and Game 1972).

The blunt-nosed leopard lizard is an active, diurnal species that is very elusive, wary, and moves rapidly. When a lizard is approached, it lies flat and motionless. As a person moves nearer, it may suddenly dash to a burrow. When cover is scarce, it may run a considerable distance, stop, crouch low, and run again.

Activity is partly correlated with temperature. In early June, the adults proceed to sun themselves around 8:30 a.m. at a surface temperature of 82°F. Most lizards take cover when the air temperature reaches 106°F., seeking shade in burrows, under bushes, or by fence posts (Snow 1972).

The reproductive cycle of the blunt-nosed leopard lizard is subject to slight variation as a result of environmental conditions. The mating season lasts from the latter part of April through May. May and June are usual for egg laying. The clutch size varies from two to five, with an average of three. Incubation is around 57 days. The young appear as early as July 30 and are noted from August to September (Snow 1972).

## Fishes

The federally listed species discussed here are the Owens pupfish and the Mohave tui chub. Candidate species are relict dace, Railroad Valley springfish, and the Owens tui chub.

Owens pupfish: The Owens pupfish (Cyprinodon radiosus) is native to the Owens Valley of eastern California. Originally it was distributed throughout the Owens River system, from the feeder springs at Fish Slough, Mono County, to Lone Pine, Inyo County. The species was found in the shallow portions of sloughs, tule swamps, and small irrigation ditches (Kennedy 1916; Meller and Pister 1971).

Agricultural development and water export reduced pupfish habitat. Coupled with the establishment of exotic fishes, the species declined to the point where it was believed, for many years, to be extinct. Now it occurs only in Warm Springs, near Lone Pine (Miller and Pister 1971) and in refuges constructed around springs at Fish Slough, designated as the Owens Valley Native Fish Sanctuary.

The Owens pupfish was listed as endangered throughout its range by the Department of the Interior in March, 1967 (Federal Register 1967). Supplemental protection is provided by the State of California which also classifies this pupfish as endangered.

Owens pupfish habitat at Fish Slough lies about 4 miles west of milepost 458 on the Central Nevada Alternative. The wetlands at Warm Springs are about 1 mile east of milepost 472 on the Central Nevada Alternative.

Mohave Tui Chub: The original range of the Mohave tui chub (Gila bicolor mohavensis) included the Mohave River and associated sloughs, lakes, and springs from the juncture of the East and West Forks (south of Victorville) to Soda Lake (at the mouth of the river, south of Baker), all in San Bernardino County. Currently this species is found primarily at Zzyzx Springs and Lake Tuendae on the northwestern edge of Soda Lake. Introduced populations also exist in Lark Seep Lagoon on the China Lake Naval Weapons Center, in a 2-acre pond at south Coast Botanic Gardens in Palos Verdes, in Norco Lake in the city of Norco, Riverside County, and at the Barstow BLM Way Station in the city of Barsto.

The Mohave chub was listed as endangered throughout its range by the Department of the Interior in October, 1970 (Federal Register 1970).

None of the known locations inhabited by the Mohave chub are within the area of the Proposed Action, its alternatives, or variations.

Relict (Steptoe) Dace: The relict dace (Relictus solitarius) is the only native fish species in the region composed of Butte, Goshute, Ruby, and Steptoe Valleys, Nevada. Decreasing populations inhabit springs and associated marshes in each of these valleys. The species has experienced reduction through most of its range in recent years as a result of exotic fish introductions and habitat alterations (Hardy 1979).

The relict dace has been determined by the FWS to be a candidate species and is classified by Nevada as rare.

All of the localities inhabited by the relict dace are substantially north of the Central Nevada Alternative route.

Railroad Valley Spring fish: The Railroad Valley spring fish (Crenichthys nevadae) occurs in five localities in the Railroad Valley, Nevada. Little other information is available.

It has been designated as a candidate species, being reviewed by the FWS for consideration as endangered or threatened. It is classified as rare by the State of Nevada.

One of the localities where the Railroad Valley spring fish occurs is at Big Spring near Lockes, Nevada. This is near milepost 264 of the Central Nevada Alternative. No other known habitats are within the area of the Proposed Action or its alternatives.

Owens Tui Chub: The Owens tui chub (Gila bicolor snyderi) is a native of the Owens River drainage of eastern California. Originally this chub lived primarily in quiet pool habitats and spring-fed sloughs of the Owens River and its larger tributaries. Formerly abundant in Owens Valley, this subspecies now is isolated in a section of the Owens River near Bishop, California. Although chubs still abound throughout Owens Valley, most are hybrids between the native Owens chub and other subspecies introduced as bait minnows by anglers.

The only remaining pure population of Owens tui chub is located in a spring-fed flow in the old river channel in Owens Gorge north of Bishop. This one restricted population is far from secure and, as a result, Owens tui chubs have been further introduced into the Owens Valley Native Fish Sanctuary (Soltz and Niaman 1978).

The Owens tui chub has been determined by the FWS to be a candidate species and is classified by Nevada as endangered.

Both of the locations now inhabited by the Owens tui chub are considerably west of the Central Nevada Alternative route.

## Invertebrates

The invertebrates discussed here are the Lange's metalmark butterfly, an endangered species, and the San Joaquin dune beetle, a candidate species.

Lange's Metalmark Butterfly: The Lange's metalmark butterfly (Apodemia mormo langei) occurs at two remnant sand dune sites near Antioch, Contra Costa County, California, at the eastern end of the Stamm-Star Theatre property; and along the river edge bluff of the Little Corral-Sardis-Pacific Gas and Electric land. The distribution of this subspecies is restricted to that of the larval food plant, a species of buckwheat. This plant (Eriogonum latifolium auriculatum) is scattered along the waterfront of the Kaiser Gypsum property and also occurs in good numbers on the Imperial West Chemical Company, Inc. property in Antioch.

Lange's metalmark butterfly was listed as endangered throughout its range by the Department of the Interior in June, 1976 (Federal Register 1976).

The areas in which this butterfly and its larval foodplant occur are about 5 miles north of where construction would begin on the Northern Systems Alternative of the RMPP in California. Lange's metalmark butterfly does not occur within the area of the Proposed Action or of any of the other alternative routes or variations.

San Joaquin Dune Beetle: The range of the San Joaquin dune beetle (Coelus gracilis) consisted of five sites along the western edge of the San Joaquin Valley in California. It has been extirpated from its type locality at Antioch Dunes, Contra Costa County. It is presently found in fossil dunes at Ciervo Hills and near Kettleman City and in Fresno County at Big Panoche Hills and Jacalitos Canyon. This beetle is considered a candidate species by the FWS.



None of the known sites now inhabited by the San Joaquin dune beetle are within the area of the RMPP Proposed Action, its alternatives, or variations. The closest known habitat area lies about 1 mile southeast of the Panoche Junction compressor station site on the Northern Systems Alternative.

The areas in which the species are found, are arid with widespread sandy soils. This beetle inhabits only sand dunes or extremely sandy substrates. The dunes evidently represent fragmented remains of prehistoric sand beaches which bordered inland extensions of the Pacific Ocean. Subsequent uplifting and erosion have reduced the dunes to a few ridge tops elevated above the valley floor.

Dune beetles are flightless, little moving organisms, which spend a great deal of time within the substrate. Larvæ develop exclusively in sand and also pupate there. Adults are occasionally found in open sand, but they usually occur a few inches below the surface of the sand beneath the canopy of various herbs and shrubs. During hotter months they congregate beneath canopies of vegetation. At night and during cool, foggy days, they commonly move several yards horizontally into the open sand. The San Joaquin dune beetle is active from about November to April, during the growth period of the plants under which it finds shelter. During the hot summer, few beetles are found.

The Upper Sonoran subshrub association, in which this species occurs, is an assembly of soft-wood low shrubs that are suited to survival in low; moisture.

The population of the San Joaquin dune beetle, formerly present at its type habitat of Antioch dunes, has been extirpated by habitat alteration. Extensive off-road vehicle (ORV) activity in the area near Ciervo Hills and Kettleman City is resulting in habitat alteration that is affecting this species' continued existence. The dunes at Big Panoche Hills and Jacalitos Canyon measure only a few hundred square yards and can support only a few hundred beetles each. Any human activity which could reduce these areas could seriously reduce the habitat needed for this species.

Table 4

Federally Listed Endangered and Threatened Animal Species and Candidate Species that may occur within the Proposed Rocky Mountain Pipeline Project Area.

California	E	Bald eagle
	E	Blunt-nosed leopard lizard
	C	Desert tortoise
	E	Lange's metalmark butterfly
	E	Least Bell's vireo
	E	Mohave tui chub
	E	Owens pupfish
	C	Owens tui chub
	C	San Joaquin dune beetle
Idaho	E	Bald eagle
	E	Whooping crane
Nevada	E	Bald eagle
	C	Desert tortoise
	C	Railroad Valley springfish
	C	Relict (=Steptoe) dace
Utah	E	Bald Eagle
	T	Desert tortoise
	E	Utah Prairie dog
Wyoming	E	Bald eagle
	E	Black-footed ferret

E = Endangered

T = Threatened

C = Candidate



## State Listed Species

The Mohave ground squirrel is the only state listed species discussed here.

Mohave Ground Squirrel: The Mohave ground squirrel (Spermophilus mohavensis) is small, and uniformly brownish-gray above and cream-colored below. It is distinguished from the similar round-tailed ground squirrel by the white under surface of the tail, which is held over its back while running. The white-tailed antelope squirrel, which shares much of the range of the Mohave ground squirrel and is about the same size, is distinguished from it by the white stripe on each side of its back.

The Mohave ground squirrel occurs only in the western Mojave Desert of California, from Olancho in Inyo County, south to Victorville in San Bernardino County, and from the Thachapi Mountains in Kern County, east to the Granite Mountains in San Bernardino County.

The Mohave ground squirrel is a State designated rare species in California.

Habitat of the Mohave ground squirrel may exist at various locations along the route of the Central Nevada Alternative from milepost 540 to its end at Adelanto, California. Habitat may also be present along the alignment of the Northern Systems Alternative from Hinkley, California to Adelanto.

This ground squirrel occupies a wide variety of desert habitats at elevations ranging from 1,800 to 5,000 feet. Plant communities include alkali sink and saltbush, creosote bush scrub, and Joshua tree woodland. This species is threatened due to its limited range and the rapid rate at which habitat is being destroyed by urbanization and agricultural development. ORV vehicle use is a serious threat in several areas within the range of this ground squirrel.

## ENVIRONMENTAL CONSEQUENCES

### Plants

Vegetation would be destroyed within the construction area and trampled in the assembly and stringing portion of the right-of-way. Since the exact alignment is unknown, no conclusive statements can be made concerning impacts to a species or population.

Upon establishment of the pipeline alignment, a biological survey would be conducted to determine if any plants would be affected. If it is found that impacts to a species would occur, formal Section 7 consultation procedures would be initiated by the BLM, the FS, and the FWS. These procedures would result in establishing methods of protecting the species from impacts which could occur as a result of pipeline construction.

(Refer to table 5 for plants that may be affected by the proposed action, alternatives, or variations).

### Wildlife

#### Federally Listed Species

##### Mammals

Black-Footed Ferret: The Proposed Action, Northern Systems Alternative, and the West Salt Lake Alternative in Wyoming may pass through a part of the extreme western range of the black-footed ferret. These route segments may also pass through prairie dog towns which are the ferret's natural habitat. Any prairie dog colony could provide suitable habitat for the black-footed ferret, but several towns, including some large ones in proximity and with a

TABLE 5

THREATENED AND ENDANGERED PLANT SPECIES  
That Have a High Probability of being Located Along the Proposed Action, Alternatives, or Variations

Species	Status	Proposed Action	Northern Systems Worst-Case	Sanpete Valley	Central Nevada	Sevier Escalante Desert	West Salt Lake	Provo Canyon	Mill Creek	Daniels Canyon
<i>Agave utalaensis</i> var. <i>enosipina</i>	C	X		X		X	X	X		
<i>Allium passeyi</i>	C						X			
<i>Amsinckia grandiflora</i>	RE		X							
<i>Arctomecon californica</i>	C	X		X		X	X	X		
<i>Arctomecon humilis</i>	E	X		X		X	X	X		
<i>Asclepias eastwoodiana</i>	C				X					
<i>Astragalus callithrix</i>	C				X					
<i>Astragalus desereticus</i>	C	X		X	X	X				
<i>Astragalus funereus</i>	C				X					
<i>Astragalus lentiginosus</i> var. <i>latus</i>	C			X						
<i>Astragalus uncialis</i>	C				X					
<i>Chorizanthe spinosa</i>	C				X					
<i>Cryptantha hoffmannii</i>	C				X					
<i>Cuscuta warneri</i>	C					X				
<i>Echinocereus englemannii</i> var. <i>purpureus</i>	E	X		X		X	X	X		

TABLE 5 (Continued)

Species	Status	Proposed Action	Northern Systems Worst-Case	Sanpete Valley	Central Nevada	Sevier Escalante Desert	West Salt Lake	Provo Canyon	Mill Creek	Daniels Canyon
<i>Eriogonum eremicum</i>	C				X					
<i>Eriogonum nanum</i>	T				X					
<i>Eriogonum ostlundii</i>	C			X						
<i>Eriogonum vestitum</i>	C		X							
<i>Haploppapus watsonii</i>	W				X					
<i>Lesquerella garrettii</i>	C							X		
<i>Machacranthera kingii</i>	C									X
<i>Mentzelia argillea</i>	C			X						
<i>Opuntia pulchella</i>	W				X					
<i>Penstemonbicolor</i> ssp. <i>bicolor</i>	C	X		X		X	X	X		
<i>Penstemon garrettii</i>	C				X			X		
<i>Penstemon tidiestromii</i>	C	X			X	X				
<i>Phacelia anelsonii</i>	C	X		X		X	X	X		
<i>Phacelia argillacea</i>	E									
<i>Phacelia utahensis</i>	C								X	
<i>Phlox glandiformis</i>	C			X		X	X	X		
<i>Puccinella parishii</i>	C		X							
<i>Sclerocactus polyancistrus</i>	C				X					

TABLE 5 (Concluded)

Species	Status	Proposed Action	Northern Systems Worst-Case	Sanpete Valley	Central Nevada	Sevier Escalante Desert	West Salt Lake	Provo Canyon	Mill Creek	Daniels Canyon
<i>Spartina gracilis</i>	R				X					
<i>Sphaeralcea caespitosa</i>	C				X					
<i>Tropidocarpum capparideum</i>	RE		X							

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C = Currently under review, Federal Register 1980 considered candidate for formal listing.

E = Listed as endangered in Federal Register 1980.

T = State listing as threatened; no protection under state law.

R = Rare in California; protected under state law.

RE = Rare and endangered in California protected under state law.

W = Watch list in Nevada; no formal protection under state law.

stable prairie dog population, appear to be necessary for the maintenance of a ferret population (Black-footed Ferret Recovery Team 1978; Colorado Division of Wildlife 1978; Queal, et al. 1977). The disturbance associated with pipeline construction could result, at least temporarily, in the loss of portions of some prairie dog colonies.

It is not expected that a black-footed ferret will be present within any prairie dog town to be disturbed by construction, but it is possible. Therefore, if a prairie dog town which would be traversed by the pipeline, it is presumed that the pipeline may affect the black-footed ferret until field surveys determine otherwise. The species would not be affected by the operation, maintenance, and abandonment of the project.

Utah Prairie Dog: The Proposed Action would pass through what was the major portion of the species' historical range, but what has become uninhabited by the Utah prairie dog because of a warmer, drier climate and a change in vegetation. Neither the proposed route nor any of its alternatives lie close enough to existing habitat areas for construction to affect the Utah prairie dog. Operation, maintenance, and abandonment of the project also would have no effect on the prairie dog.

San Joaquin Kit Fox: The Northern Systems Alternative, if selected, may affect the San Joaquin kit fox or its habitat along the route, from milepost 70 to the end at Panoche Junction, a total distance of about 46 miles. Construction of the pipeline here could destroy dens and other important habitat resulting in the death or displacement of kit foxes. Displaced and remaining foxes would have to subsist in less habitat of possibly lower quality. The potential for detrimental effects upon this species would be less where the route would be adjacent to existing highways. A survey would be necessary to determine the absence of kit foxes along the route alignment. Neither the Proposed Action nor any of the other alternatives or variations would affect the San Joaquin kit fox. The species would not be affected by operation, maintenance, and abandonment of the project.



## Birds

~~Bald Eagle: Only the winter habitat of the bald eagle in Utah would be encountered by construction of the proposed project. Approximately 37 miles of such habitat would be traversed by the Proposed Action, and the Sanpete Valley Alternative would also cross about 37 miles (refer to table 2). If large roost trees (Sprunt 1972) were destroyed in traversing these areas, the project could indirectly affect the wintering population of eagles. Because pipeline construction would occur from May through October, before bald eagles have migrated to winter habitat, construction would not directly affect the birds. The bald eagle would not be affected by any of the other alternatives or variations, nor by operation, maintenance, and abandonment of the project.~~

Whooping Crane: Whooping cranes do not occur in the areas that would be crossed by the Proposed Action or its alternatives. Whooping cranes would not be affected by construction, operation, maintenance, or abandonment of the Proposed Action or any of the alternatives or variations.

Yuma Clapper Rail: The proposed pipeline route may encounter or come close to some small areas of potential summer habitat at the extreme northern edge of the Yuma clapper rail's range. These areas exist in the 8 mile reach between mileposts 588 and 596 of the proposed pipeline. Because no rails have been recorded here, construction of the pipeline probably would have no effect on the species. If the alignment were to avoid marsh areas, and construction were to occur in late summer or fall, the potential for detrimental effects would be less.

Yuma clapper rails would not be affected by the operation, maintenance, or abandonment of the RMPP Proposed Action or any of the alternatives or variations.



Least Bell's Vireo: The least Bell's vireo would not be affected by the construction, operation, maintenance, or abandonment of the Proposed Action or any of its alternatives or variations.

## Reptiles

Desert Tortoise: The Proposed Action would encounter the desert tortoise proposed action in southwestern Utah where this species is federally listed as threatened only in the Beaver Dam Slope area. The proposed action route would not cross the designated critical habitat of this species although it would pass within several miles of the designated area. In southeastern Nevada the alignment would cross about 101 miles of habitat (as noted in table 3). Direct losses to tortoises would be caused during construction activity by equipment excavating the ditch for the pipeline. Other tortoises would be crushed under the wheels of equipment working in the right-of-way; some would be killed in their burrows underground. Any substantial depressions left in the ground after construction could become death traps for this species. Construction from April to mid-July, when tortoises are most active, would result in greater losses. Tortoise populations are lower along existing rights-of-way, thus construction that did not follow them would cause a higher number of mortalities per mile (Maley 1980). The most significant rate of loss would probably occur between Searchlight, Nevada and the California state line due to higher tortoise population densities. Vehicular travel along the pipeline right-of-way after construction for maintenance or other purposes, could result in further losses to the desert tortoise.

The Northern Systems Alternative between Hinkley and Adelanto, California, could affect 2 miles of desert tortoise habitat; the Central Nevada Alternative could affect 24 miles; and the Fort Mojave Variation could affect 29 miles.

Blunt Nosed Leopard Lizard: The Northern Systems Alternative may affect the blunt-nosed leopard lizard or its habitat in Merced and Fresno Counties, California. The pipeline could encounter these animals or their habitat anywhere between milepost 60 and the route's end at Panoche Junction, a total distance of about 56 miles. Lizards and/or their habitat may be affected especially in the vicinity of mileposts 103 to 105, a known habitat location. A survey would be necessary to determine the absence of leopard lizards along the route alignment. The detrimental effects of the project could be direct losses of lizards and their eggs by crushing in burrows during construction as well as destruction of habitat. Neither the Proposed Action nor any of the other alternatives or variations would affect this species. The blunt-nosed leopard lizard would not be affected by the operation, maintenance, or abandonment of the project.

#### Fishes

Owens Pupfish: The Central Nevada Alternative (at milepost 472) would pass within a mile of Owens pupfish habitat in the wetlands at Warm Springs, California, but construction of this alternative, if chosen, would not affect the pupfish. The Owens pupfish would not be affected by construction, operation, maintenance, and abandonment of the Proposed Action or any of its alternatives or variations.

Mohave Tui Chub: The Mohave tui chub would not be affected by construction, operation, maintenance, or abandonment of the Proposed Action or any of its alternatives or variations.

Relict (Steptoe) Dace: The relict dace would not be affected by construction, operation, maintenance, or abandonment of the Proposed Action or any of its alternatives or variations.

Railroad Valley Springfish: The Central Nevada Alternative construction could affect this species at Big Spring near Lockes, Nevada. A survey may be necessary to determine the proximity of the route to the springfish habitat. If this alternative were routed to avoid the springfish habitat no impacts would occur. The Railroad Valley springfish would not be affected by the construction, operation, maintenance, or abandonment of the Proposed Action or any of its other alternatives or variations.

Owens Tui Chub: The Owens tui chub would not be affected by construction, operation, maintenance, or abandonment of the Proposed Action or any of its other alternatives or variations.

#### Invertebrates

Lange's Metalmark Butterfly: The Lange's metalmark butterfly and San Joaquin June beetle would not be affected by the construction, operation, maintenance, or abandonment of the Proposed Action or any of its alternatives or variations.

#### State Listed Species

Mohave ground squirrel: Construction of the Central Nevada Alternative may destroy Mohave ground squirrel habitat along the route from milepost 540 to its end at Adelanto, California. Some ground squirrels, especially young, may be killed, and others may be displaced to compete in other habitat areas. A survey would be necessary to determine the absence of Mohave ground squirrels along the route. The species may also be affected in the same way along that portion of the Northern Systems Alternative that would extend from Hinkley, California, to Adelanto. If this alternative were chosen, a survey to determine the absence of the ground squirrel along the alignment would be necessary. Neither the Proposed Action nor any of the alternatives, other than those mentioned, would affect the Mohave ground squirrel. The species would not be affected by the operation, maintenance, and abandonment of the project.

Table 6

## Species That May Be Affected by the Various Routes of RMPP

<u>Route</u>	<u>Species</u>	<u>Milepost or Location</u>	<u>Total Miles</u>
Proposed Action	Black-footed ferret	0-70	70
	Desert tortoise	441-493	52
		520-540	20
		551-580	29
		Total	101
Northern Systems Alternative	Black-footed ferret	0-20	20
	Blunt-nosed leopard lizard	60-116	60
	Desert tortoise	Helendale, CA	2
	Mohave ground squirrel	Hinkley to Adelanto, CA	30
	San Joaquin Kit Fox	70-116	46
Sanpete Valley Alternative	None		
Central Nevada Alternative	Desert tortoise	610-621	11
		648-665	13
		Total	24
	Mohave ground squirrel	540-666	126
	Railroad Valley springfish	Big Springs near Lockes, NV	n/a
Sevier-Escalante Desert Alternative	None		
West Lake Salt Alternative	None		
Provo Canyon Alternative	None		
Strawberry Lake Variation	None		
Las Vegas Variation	None		
Fort Mojave Variation			
Desert tortoise		30-59	
Daniels Canyon Variation	None		

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